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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 480055 GWW/RDD	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/NZ2003/000054	International Filing Date (day/month/year) 31 March 2003	Priority Date (day/month/year) 31 March 2002
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ B27N 5/02; B30B 11/04; A01G 9/02		
Applicant THE CHRISTIAN CHURCH COMMUNITY TRUST et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheet(s).

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 21 October 2003	Date of completion of the report 30 June 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer A. SEN Telephone No. (02) 6283 2158

I. Basis of the report**1. With regard to the elements of the international application:***

- ☐ the international application as originally filed.
- ☒ the description, pages 1-17, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☒ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages 18-22, received on 22 June 2004 with the letter of 22 June 2004
- ☒ the drawings, pages 1/20-20/20, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-32	YES
	Claims	NO
Inventive step (IS)	Claims 1-32	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-32	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

Claims 1-32 meet the criteria set forth in PCT Article 33(2)-(4) for novelty, inventive step and industrial applicability. The prior art published before the priority date does not disclose an apparatus and a method for forming articles made from sphagnum moss, comprising a conveyor belt, means for delivering moss onto the belt, a spreader for spreading the moss on the belt, a press with a cavity die and a co-operating die member so arranged that the belt is pressed into the cavity die by the co-operating die member during press-forming, such that the belt has sufficient resilience to lift the article from the cavity of the cavity die once the article has been press-formed.

WHAT WE CLAIM IS:

1. Apparatus for forming three dimensional shaped products from particulate
5 sphagnum moss material including:
a conveyor including a belt formed of a flexible and resiliently deformable material and arranged to carry on the belt of the conveyor the particulate material and arranged to move in steps,
means for continuously delivering particulate moss material onto the conveyor
10 for conveying to a press forming stage and a spreader for spreading the particulate material to a substantially even thickness layer on the belt of the conveyor,
a press forming stage including a cavity die member positioned beneath the belt of the conveyor and including a shaped die cavity, and a co-operating die member positioned above the belt of the conveyor and arranged to move after each step forward
15 of the conveyor which delivers fresh particulate moss material between the die members, to press the section of the belt of the conveyor between the die members and the particulate material thereon into the cavity die member, to form a shaped product,
the belt of the conveyor having sufficient resilience to lift the press formed product from the cavity die member after each operation of the press forming stage, and
20 the conveyor being arranged to convey the formed products away from the press forming stage.
2. Apparatus according to claim 1 wherein the spreader comprises one or more longitudinal spreaders each arranged to move reciprocally across the conveyor before
25 the press forming stage and rotate about a longitudinal axis of the spreader and carrying a number of spreader fingers.
3. Apparatus according to either one of claims 1 and 2 wherein the belt of the conveyor is formed from a synthetic fabric material.
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4. Apparatus according to claim 3 wherein the synthetic fabric material is a woven or knitted synthetic material.

5. Apparatus according to claim 3 wherein the synthetic fabric material is a woven synthetic material.
6. Apparatus according to any one of claims 1 to 5 including means after the press forming stage for collecting and recycling unused particulate.
7. Apparatus according to any one of claims 1 to 6 including a subsequent packaging stage for shrink packaging each product or numbers of products together.
- 10 8. Apparatus according to any one of claims 1 to 7 wherein the die members are shaped to form products having a truncated approximately conical shape.
9. Apparatus according to claim 1 to 8 wherein the die members are shaped to form products which are wider than they are deep in a plane between in a closed base and an open top of the products.
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10. Apparatus according to any one of claims 1 to 9 wherein the press forming stage comprises two or more pairs of die members for forming two or more products after each step forward of the conveyor which delivers fresh particulate material to the press forming stage.
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11. Apparatus according to claim 10 wherein the die members are interchangeable between die members shaped to form smaller products and die members shaped to form products having a dimension greater across the width of the conveyor than in the direction of movement of the conveyor for forming products which are wider than they are deep in a plane between a closed base and an open top of the products.
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12. Apparatus according to any one of claims 1 to 11 including a drying stage for kiln drying the particulate moss material before depositing on the conveyor for press forming into products.
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13. Apparatus according to claim 12 including a rewetting stage for applying moisture to the particulate moss material to re-condition the moss material after drying but before press forming into products.

5 14. Apparatus according to any one of claims 1 to 13 including a subsequent packaging stage for packaging the products.

10 15. Apparatus according to any one of claims 1 to 13 including a stage arranged to apply moisture to the exterior of the products to at least partially reconstitute at least part of the exterior of the products to a natural sphagnum moss appearance, after press forming and a subsequent packaging stage for packaging the products in packaging which minimizes moisture loss from the products.

15 16. Apparatus according to either one of claims 14 and 15 wherein said packaging stage is arranged to heat shrink package the products in a plastic film material.

17. A method for forming three dimensional shaped products from particulate sphagnum moss material including:

20 spreading particulate material to a substantially even thickness layer on the belt of a conveyor,

carrying the particulate moss material to a press forming stage on a conveyor including a belt formed of a flexible and resiliently deformable material and arranged to move in steps, the press forming stage including a cavity die member positioned beneath the belt of the conveyor and including a shaped die cavity and a co-operating
25 die member positioned above the belt of the conveyor, to press the section of the belt of the conveyor between the die members and the particulate material thereon into the cavity die member to form a shaped product, and the belt of the conveyor having sufficient resilience to lift the press-formed product from the cavity die member after each operation of the press forming stage,

30 causing the conveyor to convey the formed products away from the press forming stage, and

after each operation of the press forming stage causing the conveyor to step on to deliver fresh particulate material between the die members.

18. A method according to claim 17 wherein the belt of the conveyor is formed from a synthetic fabric material.

5 19. A method according to claim 18 wherein the synthetic fabric material is a woven or knitted synthetic material.

20. A method according to claim 18 wherein the synthetic fabric material is a woven synthetic material.

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21. A method according to any one of claims 17 to 20 including collecting and recycling unused particulate after the press forming stage.

15 22. A method according to any one of claims 17 to 21 including subsequently packaging each product or numbers of products together.

23. A method according to any one of claims 17 to 21 including applying moisture to the exterior of the products to at least partially reconstitute at least part of the exterior of the products to a natural sphagnum moss appearance after press forming, and
20 subsequently packaging the products and packaging which minimizes moisture loss from the products.

24. A method according to either one of claims 22 and 23 including heat shrink packaging the products in a plastics film material.

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25. A method according to any one of claims 17 to 24 wherein the die members are shaped to form products having a truncated approximately conical shape.

26. A method according to claim 17 to 25 wherein the die members are shaped to
30 form products which are wider than they are deep in a plane between a closed base and an open top of the products.

27. A method according to any one of claims 17 to 26 including press forming two or more products after each step forward of the conveyor which delivers fresh particulate material to the press forming stage, by two or more pairs of die members at the press forming stage.

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28. A method according to claim 27 wherein the die members are interchangeable between die members shaped to form smaller products and die members shaped to form products having a dimension greater across the width of the conveyor than in the direction of movement of the conveyor for forming products which are wider than they are deep in a plane between a closed base and an open top of the products.

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29. A method according to any one of claims 17 to 28 including drying the particulate moss material before depositing on the conveyor for press forming into products.

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30. A method according to any one of claims 17 to 29 wherein the sphagnum moss is moss of any of the following species, alone or in combination: Sphagnum Falcatum; Sphagnum Subnitens; Sphagnum Cristatum; Sphagnum Australe; Sphagnum Subsecundum.

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31. A three dimensional shaped product produced by the method of any one of claims 17 to 30.

32. A three dimensional shaped product which is a plant container liner produced by the method of any one of claims 17 to 30.

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